

WHAT IS CLAIMED IS:

1. A turning angle detector comprising:

a magnetic flux generating means including a magnet for generating magnetic fluxes;

5 a magnetism sensing element responsive to the magnetic fluxes passing therethrough to detect a relative turning angle between the magnetic flux generating means and the magnetism sensing element from the magnetic fluxes passing therethrough; and

10 a magnetic flux reducing means for passing therethrough a part of the magnetic fluxes generated by the magnet thereby to reduce the magnetic fluxes passing through the magnetism sensing element only when the relative turning angle between the magnetic flux generating means and the magnetism sensing element is within a predetermined range of turning angles.

15 2. The turning angle detector as in claim 1, wherein the magnetic flux reducing means includes an external magnetic member made of magnetic material to pass the part of the magnetic fluxes therethrough.

3. The turning angle detector as in claim 2, wherein:

20 the magnetic flux generating means includes two generally semi-cylindrical yokes made of magnetic material and sandwiching the magnet between respective circumferential ends; and

the yokes have an inside shape of an ellipse.

4. The turning angle detector as in claim 2, wherein:

the magnet is divided into two generally semi-cylindrical magnet parts and magnetized in a radial direction; and

the magnetism sensing element is disposed between the magnet parts so that the magnetic fluxes pass from one of the magnet parts to the other of the magnet parts through the magnetism sensing element.

5. The turning angle detector as in claim 2, wherein the external magnetic member is provided radially outside the magnetic flux generating means.

6. The turning angle detector as in claim 2, wherein the external magnetic member is provided radially inside the magnetic flux generating means and axially displaced from the magnetism sensing element.

7. The turning angle detector as in claim 1, wherein:

the magnetism sensing element is positioned between two generally semi-columnar cores made of magnetic material; and

the magnetic flux reducing means includes a magnetic shortcut provided between the cores and nearer to the magnetic force generating means than to the magnetism sensing element, the magnetic shortcut being narrower than a radial thickness of the sensing element.

8. The turning angle detector as in claim 7, wherein:

the magnetic flux generating means includes two generally semi-cylindrical yokes made of magnetic material and sandwiching the magnet between respective circumferential ends; and

the yokes have an inside shape of an ellipse.

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9. The turning angle detector as in claim 7, wherein:

the magnet is divided into two generally semi-cylindrical magnet parts and magnetized in a radial direction; and

the magnetism sensing element is disposed between the magnet parts so that the magnetic fluxes pass from one of the magnet parts to the other of the magnet parts through the magnetism sensing element.

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10. The turning angle detector as in claim 7, wherein:

the cores have respective protrusions extending from flat surfaces to provide the shortcut, the flat faces of the cores facing each other; and

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the protrusions are provided on circumferential ends of the cores thereby to narrow a gap between the cores at the circumferential ends.